

The Changing Face of a Village's Architecture in Southeast Nigeria

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ABSTRACT

Architecture in a Nigerian town, Adazi-Nnukwu, Anambra State has gone from Neolithic to International Style, from the use of clay products to concrete, steel and glass. The small town's architecture that was predominantly mud buildings in the 1980s are today, covered with concrete and steel buildings and appeared International style. The term International Style covers buildings and architects of the formative decades of modernism. The unguided growth and explosion in the architecture of the small town has resulted in a confused architectural modules and difficult to classify by any standards. This paper aims to indicate the new trend and shift in the architecture of the small town from Neolithic to International Style or an undetermined style. It adopted content base analysis where the authors laid emphasis on the works of previous authors in the field. Adazi-Nnukwu struggles with different styles of architecture for her post modern, urban to suburban architectural growth and has not embraced a particular architectural style, but the architecture of different historic periods including, but not limited to neoclassical architecture. The confusion in the classification of the town's architecture has led to different opinions especially, with the fragmentation, non-liner process of design, interest in manipulating ideas of a structure's surface or skin, and apparent non-Euclidean geometry (non-rectilinear shapes) which serve to distort and dislocate some of the elements of their architecture that some considered, deconstructivism and has stuck and has now, in fact, come to embrace a general trend within their contemporary architecture.

KEYWORDS: clay, architecture, bricks, movement, urban, suburban, periods

INTRODUCTION

In the construction industry, mud is a semi-fluid material that can be used to coat, seal, or adhere materials. Depending on the composition of the mud, it can be referred by many different names, including slurry, mortar, plaster, stucco and concrete. Not only that mud is a liquid or semi-liquid mixture of water and any combination of different kinds of soil (loam, silt and clay), it usually forms after rainfall or near water sources. Ancient mud deposits harden over geological to form sedimentary rock such as shale or mudstone (generally called lutites). When geological deposits of mud are formed in estuaries, the resultant layers are termed bay mud. Mud, cob, adobe, clay, and many other names are historically used synonymously to mean a mixture of subsoil and water possibly with the addition of stones, gravel, straw, lime, and/or bitumen. This material was used in a variety of ways to build walls, floors and even roofs. For thousands of years it was common in most parts of the world to build walls using mud bricks or the wattle and daub, rammed earth or cob techniques and cover the surfaces with earthen plaster (Mud, 2019).

In Shibam, Yeman, the tower blocks were the tallest mud brick buildings in the 16th century. Shibam has more mud brick high-rise buildings and the tallest mud buildings than anywhere in the world. Some of the buildings are 30 meters (100 feet) high (plate 1) and regarded as the oldest and the

best examples of urban planning based on the principles of "vertical construction or Manhattan of the desert" (Tower Block, 2013).



Plate 1 Shibam, Yeman's "mudbrick Manhattan"

Source: Image: Jialiang Gao/peace-on-earth.org/Wikimedia Commons.

In the 17th century, most of the homes, offices and major structures within the African region were built with mud (hand compressed clay sand), depending on the area and people, mud is used differently (plate 2). They were mostly

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Neolithic architecture. Neolithic architecture is the architecture of the Neolithic period. Although many dwellings belongs to all prehistoric periods and also some clay models of dwellings have been uncovered enabling the creation of faithful reconstructions, they seldom include elements that may relate them to art. Some exceptions are wall decorations and that equally apply to Neolithic and Eneolithic rites and art (Historical Development of Architecture, 2020).



Plate 2 Adazi-Nnukwu, Anocha Local Government Area mud building still existing

Source: Obiadi's field work (March 16, 2012)

In some areas, they covered wood framed structures with mud while same was not the case in certain areas. The mud structures are commonly known as *Uno Atani* in Igbo land (spare grass house, Raffia palm frond, palm frond house, etc). The mud buildings are covered and roofed with all kinds of plant leaves, depending on the area, but mostly used are, raffia palm fronds, *Ata* (sharp mouthed and aggressive grass, carefully weaved together). At that time, most of the huts (mud buildings) in developing countries were built with mostly clay soil mixed with water, hand compressed and straight from the ground around the area of the building to the building and roof, covered with native or local materials including specially made leaves and grasses.

Mud can be made into mud bricks, also called adobe, by mixing mud with water, placing the mixture into moulds and then allowing it to dry in open air. Straw is sometimes used as a binder within the bricks, as it makes them composite. When the brick would otherwise break, the straw will redistribute the force throughout the brick, decreasing the chance of breakage. Such buildings must be protected from groundwater, usually by building upon a masonry, fired brick, rock or rubble foundation, and also from wind-driven rain in damp climates, usually by deep roof overhangs. In extremely dry climates, a well-drained flat roof may be

protected with a well-prepared (puddled) and properly maintained dried mud coating, viable as the mud will expand when moistened and so become more water resistant. Adobe mud bricks were commonly used by the Pueblo Indians to build their homes and other necessary structures. Mud that is mostly clay, or a mixture of clay and sand may be used for ceramics, of which one form is the common fired brick. Fired brick are more durable but consume much more energy to produce. Stabilized mud (earth, soil) is mud which has had a binder such as cement or bitumen added. Examples are mudcrete, landcrete, and soil cement (Mud, 2019).

With the improvement and growth in the economy of Nigeria, came the introduction of cement. According to Types of Houses in Nigeria (2014), the history of cement production in Nigeria dates back to 1957. With the introduction of cement, Nigerians gradually moved away from mud buildings (plate 2) and used mostly concrete blocks made with cement and sand (sandy soil). In some cases, mud building were plaster with cement (plate 3). According to Types of Houses in Nigeria (2014), the mud houses were transformed into beautiful edifices, people began building it with plan, with different rooms and even a sitting room, painting it and even bringing in electricity. Some of the mud buildings were plastered and covered with cement (plate 3).



Plate 3 Umu-Aka, Olu, Imo State building
Source: Obiadi's field work (March 16, 2012)

Even with the introduction of cement and blocks, mud was still used in the form of bricks. As indicated by the Types of Houses in Nigeria (2014), the brick houses have taken the center stage in Nigeria now as the mud and thatched houses are referred to as ancient or primitive houses. Bricks are compressed clay soil specially made in form of small blocks. According to Neufeldt and Guralnik (1994), brick is a piece of baked clay. A substance made from clay moulded into oblong block and fired in a kiln or baked in the sun, used in building and paving. Most times, the compressed clay is burnt in

special ovens depending on the area, availability of the facility and/or, dried under the sun before usage. These bricks are still used in the western world, especially in building expensive homes. In Maryland, USA, the Maryland Masonry Institute, now, the Mid-Atlantic Masonry Association (MAMA) did a lot of work with bricks and constantly promoting their products and marketing innovative works done with bricks. The Mid-Atlantic Masonry Association (MAMA) was formed in 2013 to disseminate information and promote the use of masonry in all aspects in the market area. The program of work creates a targeted approach to providing information and strategies to promote masonry as the premier building system (Mid-Atlantic Masonry Association, 2014).

Today, and in Nigeria, builders are gradually going back to mud buildings although, under a new name, Hydra form blocks (plate 4). Hydra form gained its name from a South African company, one of the world leading masonry construction and the manufacturers of Hydraulic Block machines, championing and producing both the machines used in producing the products and the products. Now, almost all compressed clay soil blocks are commonly known as Hydra form blocks. Although the industry is not well marketed in Nigeria, the products seem to be gaining attention especially, in estate developments and rural housing schemes in poor neighborhoods and urban poor settlements (ABD Digest, 2014).

Hydra form block production does not require special skills and sophisticated training and may encourage the use of quacks and boost laziness. Poor mixing of the materials could immensely impact the products and bad clay soil with plant roots could leave holes in the product and when decayed, may affect the strength of the structure especially, when exposed to heavy rain or water logged area. Using the product in erecting a fence only requires stacking the products together on top of each other and aligning their binding channel (plate 4).



Plate 4. An expert in Hydraform blocks, representing Coojike Hydrant ----

Source: Obiadi's field work (March 16, 2012)

During the research for this article, the authors visited Coojike Hydrant, a small Hydra form plant in Adazi-Nnukwu, Anaocha Local Government Area, Anambra State, Nigeria. An expert in Compressed Clay Soil (Hydra form) indicated that they add cement to their products to strengthen them. According to him, one bag of cement could produce up to ninety tablets (as described in that industry) of Hydra form blocks and they can mould any form they want especially, the wall copings (plates 4 to 8).

According to the Hydra form expert, they produce Hydra form blocks in any colour their client desires. For the black ones (plate 6), they would only add black carbon, a powdery product generally known as carbon. Carbon has different colours, clay soil has different colours, depending on want and geographic area, they would produce according to one's desire. The expert further indicated that the products are relatively cheap and an inexpensive way to build.



Plate 5. Koojike clay products

Source: Obiadi's field work (March 16, 2012)



Plate 6. Koojike clay products

Source: The Obiadi's field work (March 16, 2012)



Plate 7. Koojike clay products

Source: Obiadi's field work (March 16, 2012)



Plate 8. Koojike clay products

Source: Obiadi's field work (March 16, 2012)

The company's expert indicated that their machines were locally manufactured and each moulds two tablets at a time while the conventional machines mould one at a time (plates 9 to 11). He further indicated that they are currently constructing a moulding machine that could mould twenty tablets at a time and also, a machine that could mould interlocking stones of any design.



Plate 9. Coojike moulding machine
Source: Obiadi's field work (March 16, 2012)



Plate. 10. Coojike moulding machine
Source: Obiadi's field work (March 16, 2012)



Plate 11. Coojike moulding machine
Source: Obiadi's field work (March 16, 2012)

The products are environmentally friendly and could be produced anywhere, even on the job sites and the machines are portable, easily moved around (plates 9 to 11). The products are fast and easy to produce and the usage is equally easy. Both the machines and the products are cost effective and create innovative ways of building, especially, with the interlocking dry stacking provisions (plate 7).

With the introduction of Hydrform block products in Adazi-Nnukwu, the model and trend in the architecture and buildings changed. The people used the products in different ways and patterns in building their houses. Some try to replicate the 1940 buildings where mud and bricks were architecturally expressed. Fundamentally, the small town has seen a shift in her architecture, a shift that is embracing urban architecture because of the availability of local building materials and the exposure of her citizens to outside world's architecture.

Aim

The primary aim of this paper to indicate and point to a new trend and shift in the architecture of the small town, Adazi-Nnukwu, Anocha Local Government Area, Anambra State, Nigeria from the Neolithic to International Style architecture.

Methodology

It adopted content base analysis where the author laid emphasis on the works of previous authors in the field of architecture and historical development in architecture, in buttressing their points.

Findings

With the technology and creative ways of using cement and interlocking hydraform blocks, village architecture, especially in Adazi-Nnukwu, that was predominantly mud buildings changed in the 1970's to concrete buildings (Plate 12), what could be considered Early Modern Architecture. Early Modern Architecture began with a number of building styles with similar characteristics, primarily the simplification of form and elimination of ornaments, that first arose around 1900. By the 1940s, these styles had largely consolidated and been identified as the International Style (Historical Development of Architecture, 2020).

Given, sprinkles of mud buildings still exist here and there in some villages however, in Adazi-Nnukwu, a small town in Anocha Local Government Area, Anambra State, Nigeria, one could hardly see a mud building as is the case in plates 2 and 3. With the abundance of cement and concrete, individuals who could afford them built their homes with concrete in the late 1970s and 1980s (plate 12) adopting International Style, but that did not last long.



Plate 12 A building built with cement products in the late 1980s
Source: The Obiadi's field work (March 16, 2012)

With the increase in importation of building materials in Nigeria, advancement and changes in building technology, Nigerians adopten the wasteren style architecture, greatly influenced by the use of stucco, tiles and bricks in finishing their buildings, adopting the Expressionist Architecture. Exprosonianist Architecture was an architectural movement that developed in Norther Europ during the first decades of the 20th century in parallel with the expressionist visual and performing arts. The style was characterised by early-modernist adoption of novel materials, formal innovations, and very unusal massing, sometimes inspired by natural biomorphic forms, sometimes by the new technological possibilities offered by mass production of brick, steel and glass (Historical Development of Architecture, 2020). As a result, a lot of concrete block buildings were built in Adazi-Nnukwu and that revolutionized the building development in that town. Today, some of those much admired buldings of the 1970s and 1980s are being knocked down and replaced with post modern buildings, embracing the use clay products inovatively transformed into brick veneers, local tiles, Hydraform blocks, etc (Plate 13). The village is witnessing a shift in architectural movement, from the mud buildings of the 1940s, 1950s, 1960 and 1970s to urban architecture of 2019. This architectural movement could be classified as a shift from the western world's architecture of the urban areas in Nigeria to suburban and or, village architecture in Adazi-Nnukwu, yet, International Style.



Plat 13. Building renovated in 2014 using clay soil products
Source: Obidi's field work (March 16, 2015)

The International Style was a major architectural trend of the 1920s and 1930s. The term usually refers to the buildings and architecture of the formative decades of modernisim, before World War ll. The term had its origin from the name of a book by Henry-Russel Hitchcock and Philip Johnson which identified, categorised and expanded upon characteristics common to modernism across the world. As a result, the focus was more on the stylistic aspects of modernism. The basic design principles of International Style thus constituted part of modernism. The ideas of Modernism were developed especially in what was taught at the German Bauhaus School in Weimar (from 1919), Dessau (between 1926-1932) and finally Berlin between 1932-33, under the leadership first of its founder, Walter Cropus, then Hannes Meyer and finally Ludwig Mies van der Rohe. Modernist theory in architecture resided in the attempt to bypass the question of what style a building should be built in, a concern that had overshadowed 19th-century architecture, and the wish to reduce form to its most minimal expression of structure and function. In the United States, Philp Johnson and Henry-Russel Hitchcock treated this new phenomenon in 1931 as if it represented a new style – the International Style, thereby misrepresenting its primary mission as merely a matter of elimination traditional ornaments. The core effort to pursue Modern architecture as an abstract, scientific programme was more faithfully carried forward in Europe, but issues of style always overshadowed its stricter and more puritan goals, not least in the work of Le Corbusier (Historical Development of Architecture, 2020).

The architecture in Adazi-Nnukwu is now, in a cross road between the Classical Greek and Modernistic Movement. Most of the buildings are adopting classical columns especially, the Corinthian columns (panel 1), supporting the argument that, the issues of style always overshadowed its stricter and more puritan goals, not least in the work of Le Corbusier as indicated above. From 2010 to date, the architecture of Adazi-Nnukwu has tremendously changed and in panels 1 to 4, are the typical examples of the town's architecture.

Panel 1. The façade and different views of a village building in Adazi-Nnukwu, Anocha Local Government Area, Anambra State, Nigeria, under construction.

Source: Obidi (January 19, 2020)





Panel 2 shows the interior details of the architecture of the building in panel 1. The building is still under construction, but the details are clear. The elements of the buildings are not hidden. The concept, proportion of the bays and the use of expressive columns in balancing the front elevation are unique and quintessential. The majority of the interior spaces were covered with Plaster of Paris (POP) decorative designs. Plaster of Paris is quick-setting gypsum plaster consisting of a fine white powder (calcium sulfate hemihydrate), which hardens when moistened and allowed to dry. Known since ancient times, Plaster of Paris is so called because of its preparation from the abundant gypsum found near Paris. Plaster of Paris does not generally shrink or crack when dry, making it an excellent medium for casting moulds. It is commonly used to precast and hold parts of ornamental plasterwork placed on ceilings and cornices (Editor, 2020).

Panel 2. The interior details of modern buildings in Adazi-Nnukwu, Anocha Local Government Area, Anambra State, Nigeria, under construction.

Source: Obiadi (January 19, 2020)



Plate 14 Adazi-Nnukwu building completed in 1989
Source: Obiadi's field work (December 1990)

Plate 14 is a building in Adazi-Nnukwu, completed in 1989. The building was basically built with cement and concrete blocks. However, with the innovative architectural explosion in Adazi-Nnukwu, the building was in 2019 renovated (panel 3), embracing the use of all sorts of modernized building materials not limited to POP, ceramic tiles, stone veneer, brick veneer, and beautifully landscaped with outdoor relaxation facilities for the comfort of the owners and their guests. It is an architectural expression and explosion not before seen in any of the Nigerian villages.

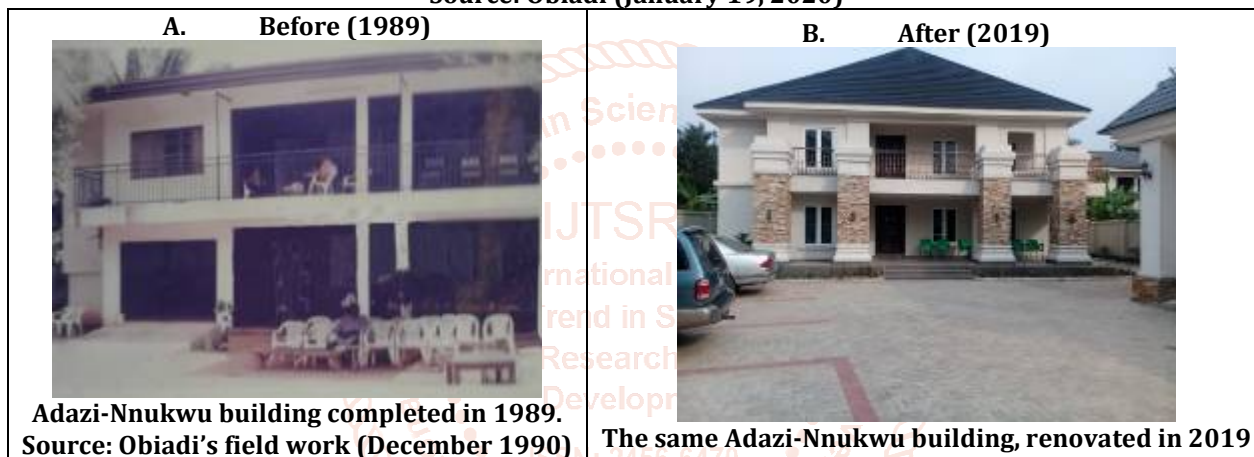
Panel 3. The entry details of a newly renovated building in Adazi-Nnukwu, Anocha Local Government Area, Anambra State, Nigeria.

Source: Obidi (January 19, 2020)



Panel 4. Adazi-Nnukwu building, built in 1989 and renovated in 2019

Source: Obidi (January 19, 2020)



Panel 4 shows the thirty years difference in the architecture growth and the culture of Adazi-Nnukwu. Panel 4A shows the same building when completed in 1989 and 4B shows it after renovation thirty years later with modernization and architectural growth in the town.

It is not in doubt, that, Adazi-Nnukwu has struggled with different styles of architecture for her post modern, urban to suburban architectural growth and has not embraced a particular architectural style, but the architecture of different historic periods including, but not limited to neoclassical architecture. Plate 15 is a building under construction that could be classified neoclassical architecture and one wonders how to classify the architecture of the town? The shift to neoclassical architecture is conventionally dated to the 1750s. It first gained influence in England and France; in England, Sir William Hamilton's excavations at Pompeii and other sites, the influence of the Grand Tour and the work of William Chambers and Robert Adam, was pivotal in this regard. In France, the movement was propelled by a generation of French art students trained in Rome, and was influenced by the writings of Johnson Joachin Winckelmann. The style was also adopted by progressive circle in other countries such as Sweden and Russia. Federal-style architecture is the name for the classicizing architecture built in North America between 1780 and 1830, and particularly from 1785 to 1815. This style shares its name with its era, the Federal Period. The term is also used in association with furniture design in the United States of the same time period. The style broadly corresponds to the middle-class classicism of Biedermeier style in the German-speaking lands, Regency style in Britain and to the French Empire style. In Central and Eastern Europe, the style is usually referred to as Classicism (German: Klassizismus, Russian: Knaccnunem), while the newer revival styles of the 19th century until today are called neoclassical (Historical Development of Architecture, 2020).

In furtherance to the confusion that the architecture of Adazi-Nnukwu could not be classified, during the research for this paper, a villager indicated that the town went from mud architecture to Deconstructivism. According to Historical Development of Architecture (2020), Deconstructivism in architecture is a development of postmodern architecture that began in the late 1980s. It is characterized by ideas of fragmentation, non-linear process of design, an interest in manipulating ideas of a structure's surface or skin, and apparent non-Euclidean geometry (non-rectilinear shapes) which serve to distort and dislocate some of the elements of architecture, such as structure and envelope. The term Deconstructivism has stuck and has now, in fact, come to embrace a general trend within contemporary architecture.



Plate 15 A Neoclassical building under construction in Adazi-Nnukwu, Anocha Local Government Area, Anambra State, Nigeria
Source: Obiadi (January 19, 2020)

Panel 5 shows building elements’ moulding panels and column panels yet to be assembled. Panel 4 A and B are moulded panels used in ornamenting the Adazi-Nnukwu buildings as seen in panels 1, 2, 3 and 5C fence. Panel 5D and E are column panels yet to be erected while panel 5F is the locally made mould plate used in moulding the column panels. As could be seen in panels 5A and B, sandy soil is used and shaped into the pattern to be moulded. Liquefied cement would be poured all over the shaped sand and the mould plate (panel 4F used in moulding the column panels to shape). After moulding and drying the panels for about three days, the moulded panels are carefully lifted and sealed in the designated places in the building as could be seen on the columns on panels 1 to 4 and plate 15.

Panel 5. Moulding of the POP panels for both the fence and the buildings in Adazi-Nnukwu, Anocha Local Government Area, Anambra State, Nigeria.

Source: Obiadi (January 19, 2020)





D Moulded column panels



E Moulded column panels



F Moulding plate

Conclusion

Architecture in Adazi-Nnukwu prior to 1950s was mostly buildings, built with mud. After the 1950s and early 1960s, with the introduction of cement, mud buildings were plastered with cement and decorated according to village interest and cultural beliefs. From the late 1950s came the use of concrete block buildings up till today. However, with the advancement in technology, growth and exposure of the people, the contemporary architecture of the small town is changing to International Style although, bracing different architectural periods. The use of mud products has resurfaced in the area and especially, Hydraform blocks and brick panels. The simplification of building forms and the elimination of ornaments have given rise to Modern architecture and in some quarters, International Style.

Recommendations

Adazi-Nnukwu architecture today is fundamentally International Style, partly because of the exposure of the people from the town, their overwhelming interest in architectural growth, architectural tourism and interest in the historic preservation of their culture as a result, this paper recommends the documentation of the town's historic architectural growth and developments. The town is fast getting too urbanized architecture-wise and adequate measures should be put in place to control the speedy growth and properly plan the infrastructure of the area to avoid unnecessary destruction of the natural environment that might result in erosion problems, building of unusable and abandoned buildings and the creation of unsustainable environment.

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